Appl. No. 09/618,741
Second Response to the Final Office Action mailed May 12, 2004

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1 - 7 (cancelled)

8. (previously amended) The method of claim 32 , wherein the mixing comprises rotating the chamber.

9. (cancelled)

10. (previously presented) The method of claim 8, further comprising:
forming the aluminum oxynitride into a transparent structure.

11. (original) The method of claim 10, wherein forming the aluminum oxynitride comprises:

forming a green body comprising the aluminum oxynitride; and

sintering the green body.

12. (original) The method of claim 11, further comprising:
isostatically pressing the sintered green body under heat.

13. (previously presented) The method of claim 32, wherein the aluminum oxynitride comprises $Al_{23-1/3x}O_{27+x}N_{5-x}$, where $0.429 \leq x \leq 2$.

14 - 31. (cancelled)

32. (currently amended) A method of making aluminum oxynitride, the method comprising:

(a) providing a chamber having a predetermined temperature;

(b) introducing aluminum oxide particles and carbon particles into the provided chamber;

(c) reacting the aluminum oxide particles and carbon particles introduced into the provided chamber while mixing the aluminum oxide particles and carbon particles within the provided chamber and while passing nitrogen gas over the mixing aluminum oxide particles and carbon particles with the predetermined temperature of the chamber being maintained constant at the predetermined temperature during conversion of the aluminum oxide particles, carbon particles and nitrogen into the aluminum oxynitride; and

(d) removing the aluminum oxynitride from the chamber.

33. (Previously presented) The method recited in claim 32 wherein the predetermined temperature is about 1700-1900°C.

34. (currently amended) A method of making aluminum oxynitride, the method comprising:

(a) providing a chamber having a predetermined temperature;

(b) introducing aluminum oxide particles and carbon particles into the provided chamber;

(c) reacting the aluminum oxide particles and carbon particles introduced into the provided chamber while continuously mixing the aluminum oxide particles and carbon particles within the provided chamber and while passing nitrogen gas over the mixing aluminum oxide particles and carbon particles with the predetermined temperature of the chamber being maintained constant at the predetermined temperature during conversion of the aluminum oxide particles, carbon particles and nitrogen into the aluminum oxynitride; and

(d) removing the aluminum oxynitride from the chamber.

35. (previously presented) The method recited in claim 34 wherein the predetermined temperature is about 1700-1900°C.

36. (previously presented) A method of making aluminum oxynitride, the method comprising:

(a) providing a chamber having a predetermined temperature;

(b) continuously introducing aluminum oxide particles and carbon particles into the provided chamber;

(c) reacting aluminum oxide particles and carbon particles continuously introduced into the provided chamber while continuously mixing the aluminum oxide particles and carbon particles within the provided chamber and while passing nitrogen gas over the mixing aluminum oxide particles and carbon particles with the temperature of the chamber being maintained constant at the provided predetermined temperature during conversion of the aluminum oxide particles, carbon particles and nitrogen into the aluminum oxynitride; and

(d) continuously removing the aluminum oxynitride from the chamber.

37. (previously presented) The method recited in claim 36 wherein the predetermined temperature is about 1700-1900°C.

38. (currently amended) A method of making aluminum oxynitride, the method comprising:

(a) providing a chamber;

(b) introducing aluminum oxide particles and carbon particles into the provided chamber;

(c) reacting the aluminum oxide particles and carbon particles introduced into the provided chamber while mixing the aluminum oxide particles and carbon particles within the provided chamber and while passing nitrogen gas over the mixing aluminum oxide particles and carbon particles with the chamber having a temperature about 1700-1900°C during conversion of the aluminum oxide particles, carbon particles and nitrogen into the aluminum oxynitride; and

(d) removing the aluminum oxynitride from the chamber.

39. (currently amended) A method of making aluminum oxynitride, the method comprising:

(a) providing a chamber;

(b) introducing aluminum oxide particles and carbon particles into the provided chamber;

(c) reacting the aluminum oxide particles and carbon particles introduced into the provided chamber while continuously mixing the aluminum oxide particles and carbon particles within the provided chamber and while passing nitrogen gas over the mixing aluminum oxide particles and carbon particles with the chamber having a temperature selected to convert the aluminum oxide particles, carbon particles and nitrogen into the aluminum oxynitride; and

(d) removing the aluminum oxynitride from the chamber.

40. (previously presented) The method recited in claim 39 wherein the temperature of the chamber is about 1700-1900°C.

41. (previously presented A method of making aluminum oxynitride, the method comprising:

(a) providing a chamber;

(b) continuously introducing aluminum oxide particles and carbon particles into the provided chamber;

(c) reacting aluminum oxide particles and carbon particles continuously introduced into the provided chamber while continuously mixing the aluminum oxide particles and carbon particles within the provided chamber and while passing nitrogen gas over the mixing aluminum oxide particles and carbon particles with the temperature of the chamber being maintained to convert the aluminum oxide particles, carbon particles and nitrogen into the aluminum oxynitride.

42. (previously presented) The method recited in claim 36 wherein the temperature is about 1700-1900°C.

43. (currently amended) The method recited in claim ~~40~~ 41 including removing the aluminum oxynitride from the chamber.

44. (currently amended) The method recited in claim ~~40~~ 41 including continuously removing the aluminum oxynitride from the chamber.

45. (previously presented) The method recited in claim 43 wherein the temperature is about 1700-1900°C.

46. (previously presented) The method recited in claim 44 wherein the temperature is about 1700-1900°C.

47. (previously presented) A method of making aluminum oxynitride, the method comprising:

(a) providing a chamber;

(b) continuously introducing aluminum oxide particles and carbon particles into the provided chamber;

(c) reacting aluminum oxide particles and carbon particles continuously introduced into the provided chamber while continuously mixing the aluminum oxide particles and carbon particles within the provided chamber and while passing nitrogen gas over the mixing aluminum oxide particles and carbon particles with the temperature of the chamber being maintained to continuously convert the aluminum oxide particles, carbon particles and nitrogen into the aluminum oxynitride.

48. (currently amended) The method recited in claim ~~37~~ 47 wherein the temperature is about 1700-1900°C.

49. (previously presented) The method recited in claim 48 including removing the aluminum oxynitride from the chamber.

50. (previously presented) The method recited in claim 48 including continuously removing the aluminum oxynitride from the chamber.

51. (previously presented) The method recited in claim 50 wherein the temperature is about 1700-1900°C.

52. (currently amended) The method recited in claim ~~51~~ 49 wherein the temperature is about 1700-1900°C.